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# *AJP-Cell Physiology* starts a Theme of Reviews on "Tissue Remodelling: From Regeneration to Fibrosis"

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Text

In this issue, *AJP-Cell Physiology* begins publication of a set of Reviews on the Theme of "Tissue Remodelling: From Regeneration to Fibrosis". We focus on tissue remodelling as a fundamental attribute of animal physiology that has crucial roles from the earliest stages of embryonic development onwards. Cell movements and morphological changes have essential roles in the development of the single fertilised egg cell to a multi-cellular embryo with a full complement of distinct organs. Throughout post-natal life, tissue remodelling is central to homeostatic physiological processes within organs and responses to environmental challenges, as seen in wound repair and the innate and adaptive immune responses. In relation to this multiplicity of roles, excessive, inappropriate, or reduced tissue remodelling occurs in disease pathologies ranging from joint degeneration, atherosclerosis, or cancer invasion and metastasis to all forms of tissue fibrosis.

The cell interactions that form the basis of tissue remodelling are coordinated by chemical and mechanical cues that drive intracellular signalling pathways, cytoskeletal organisation, gene expression profiles and post-transcriptional regulation of gene expression by microRNAs and other mechanisms [2,3]. This theme of Reviews highlights the roles of extracellular factors in tissue remodelling, with special attention to the matricellular group of extracellular matrix proteins. Matricellular proteins have modulatory roles in the extracellular milieu through binding interactions with cell-surface receptors and structural extracellular matrix proteins including collagens and fibronectin, and may also localise or regulate the activity of growth factors or cytokines [1,7]. Coordinated studies of gene-knockout mice and cultured cells have revealed complex mechanisms by which individual members of the matricellular family have important roles in stem cell physiology and/or homeostatic tissue remodelling, or act to either restrain or drive fibrotic processes. Because matricellular proteins tend to be of low abundance and are not structural components of the extracellular matrix, these findings have raised strong interest in these proteins as potential therapeutic targets.

This issue opens the theme with a set of Reviews from leaders in the field that survey pathophysiological roles of cellular communication network (CCN)

proteins [5], and contrast the activities of periostin in physiological wound-repair versus pathological fibrosis [6]. Of course, not all cues in tissue remodelling come from proteins, and the role of bioactive sphingolipids in liver disease and liver fibrosis is also discussed in this issue [4].

We thank all the authors of these Reviews, and the others yet to be published, for their time and effort in preparing these excellent articles. Many of the Reviews in this theme were commissioned in association with an *AJP-Cell Physiology* Editor's Initiative for a "Best Poster Presentation" award at the 2019 FASEB Science Research Conference on Matricellular Proteins in Inflammation and Tissue Remodeling. We thank the faculty at that conference, who participated in the poster judging process.

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